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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,660	08/11/2003	Shinichi Takahashi	50195-519	4069
20277 7590 04/29/2008 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096				
EXAMINER				
CHU, HELEN OK				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
04/29/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/637,660

**Applicant(s)**

TAKAHASHI, SHINICHI

**Examiner**

Helen O. Chu

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's Amendments have been received on February 7, 2009. Claims 1, 5 and 6 have been amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

### ***Claim Objections***

3. The objections on claims 5 and 6 are withdrawn because Applicants have amended the claims
4. .

### ***Claim Rejections - 35 USC § 112***

5. The rejections under 35 U.S.C. 112, second paragraph, on claims 5 and 6 are withdrawn because the Applicants amended the claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 3-6 recites the limitation "the cathode of the fuel cell stack" and "the anode of the fuel cell stack" in line 12 and 13 respectively. There is insufficient antecedent basis for this limitation in the claim. The previous lines

recites "an anode" and "a cathode" however it is silent as to what the anode or cathode belongs, it can be for the battery, the fuel cell stack or the unit cell of the fuel cell stack. Appropriate corrections are required, Therefore, "the cathode of the fuel cell stack" and "the anode of the fuel cell stack" lacks antecedent basis"

***Claim Rejections - 35 USC § 103***

7. The rejections under 35 U.S.C 103(a), on claims 1,3-6 are withdrawn because the Applicants have amended the claims. The rejection is repeated below for convenience.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1,3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy et al. (US Patent 4,839,247) in view of Ito et al. (US Patent 6,926,982).

In regard to claims 1, 4-6, the Levy reference discloses a fuel cell system with multiple substacks comprising a fuel cell (Applicants unit cell) that generates current and an electrolysis cell that can regenerate current that has two modes of operation, an electrolysis mode when fuel cell mode (Column 1, Lines 30-45) is terminated vice versa which inherently has a controller. The Levy reference discloses that the substacks are connected in parallel (Col. 5, lines 25-30) during electrolysis mode. The anodes must

inherently be connected and the cathodes must inherently be connected in order to obtain a parallel connection in the substacks.

During fuel cell mode, water is produced by the chemical reaction and the electrons leaving the fuel cell from the anode from conduction elements (Figure 4, components 58 and 80) into a load in this case is the electrolysis cell. During the electrolysis mode, electrons from the fuel cell are supplied to break up the water molecule into separate hydrogen and oxygen molecules. The substack can generate a current in the fuel cell and a regenerative current is collected during electrolysis. The Levy reference also discloses two or more substacks (Column 5, Lines 33-36). Though the Levy does not recite a battery connected to the fuel cell stack in a parallel fashion, however, the Levy reference discloses the substack which comprises the combination of the electrolysis cell and the fuel cell which acts as a high energy rechargeable battery (Column 1, lines 20-25). Therefore, since the Levy reference discloses multiple substacks within the fuel cell system and a substack can function as a battery, it would have been obvious to one of ordinary skill in the art to at least substitute one substack for a battery. The substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958). When a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result. **KSR v. Teleflex**. A patent for a combination, which only unites old elements with no change in their respective

functions, obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men. Where the combination of old elements performed a useful function, but it added nothing to the nature and quality of the subject matter already patented, the patent failed under §103. When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious. **KSR v. Teleflex**

In addition to, the Levy does not disclose the specific type of fuel cell utilized in the invention, however, the Ito et al. reference discloses a fuel cell with a polymer electrolyte are conventional (Column 1, lines 15-20) for fuel cell systems. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a polymer electrolyte fuel cell system as disclosed by the Ito et al. reference into the fuel cell system as disclosed by Levy because common sense teaches that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of the patents together like pieces of a puzzle. A person of ordinary skill is also a person of ordinary creativity, not an automaton. The question to be answered is whether the claimed invention is a product of innovation or merely the result of common sense, ordinary creativity, and ordinary skill. **KSR v. Teleflex**

In regards to claim 3, Levy et al. reference discloses a fuel cell having a pair of end plates (Figure 4, Component 55 and 73), a membrane electrode assembly which would have polymer electrolyte membrane and a diffusion layer (Figure 4, Component 18).

It is noted that claims 1, 5 and 6 have "intended use" language and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).g

### ***Response to Arguments***

Applicant's arguments filed February 7, 2008 received been fully considered but they are not persuasive.

Applicants' principal arguments are:

A) The Applicant's arguments regarding claim objections, the claim objections have been withdrawn because the Applicants have amended the claims.

B) The Applicant's arguments regarding 35 U.S.C. 112, second paragraph on claims 5 and 6, the rejection have been withdrawn because the Applicants have amended the claims.

C) The Applicant's argue," *Levy et al. and Ito et al., whether taken in combination, or taken alone, do not suggest the claimed fuel cell system, motor vehicle, and automobile. Levy et al. and Ito et al. do not suggest the fuel cell stack including a*

*membrane electrode assembly to generate electricity comprising a polymer electrolyte membrane and two electrodes on both sides of and adjacent to the polymer electrolyte membrane, and battery to supply current to the fuel cell stack to electrolyze water therein, as required by claims 1, 5, and 6."* However, the claim motor vehicle and automobile is in the preamble; If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. *MPEP 2111.02 II*

These arguments are mere assertions of the Applicants the Ito et al. reference teaches it is conventional to have a fuel cell with a polymer electrolyte, the Levy et al. reference discloses unit cells with fuel cells and electrolysis cells with at least the fuel cell system having a membrane electrode assembly and an electrode on each side of the electrolyte. The substacks functions as a battery to supply electrons to electrolyze water molecules during the electrolysis mode.

D) The Applicant's argue," *The Examiner also asserted that Levy et al. disclose that the cathode of the fuel cell is connected to the cathode of the electrolysis cell through an oxygen manifold and the anode of the fuel cell is connected to the anode of the electrolysis cell through the hydrogen passage. However, there is no electrical connection, as required by claims 1, 5, and 6"* However, the Levy reference discloses that there are parallel connections between the substacks which means that the substacks must be electrically connected in such a way that a cathode is connected to



the electrode of the substack and an anode is connected to another of the electrode of the substack.

E) The Applicant argues, " *There is simply no suggestion in Ito et al. that the electrolysis cell of Ito et al. supplies electricity for water electrolysis, as required by claims 1, 5, and 6. Further, there is no suggestion in Ito et al. that batteries and electrolysis cells are art recognized equivalents. In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents. In re Ruff 256 F.2d 590, 118 USPQ 340 (CCPA 1958).*" However, the Levy reference teaches the fuel cell supplies current into the electrolysis cell to electrolyze the water molecules. The substacks are connected to in parallel and as the Levy et al. reference discloses that a fuel cell stack can act as a battery. .

### **Conclusion**

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-12922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795